State of California

Employment Training Panel

Training Proposal for:

Lockheed Martin Space Systems Company

Agreement Number: ET09-0292

Panel Meeting of: **October 17, 2008**

ETP Regional Office: **San Francisco Bay Area** Analyst: T. Teles

PROJECT PROFILE

Contract Type: Priority/Retrainee

Industry Sector(s): Manufacturing

Counties Served: Santa Clara, Santa Cruz

Repeat Contractor: ☒ Yes ☐ No

Union(s): ☒ Yes ☐ No

International Association of Machinists and Aerospace Workers, District Lodge 725

Priority Industry: ☒ Yes ☐ No

No. Employees in CA: 12,000

No. Employees Worldwide: 140,000

Turnover Rate %	Manager/ Supervisor %
2.2%	15%

FUNDING DETAIL

Program Costs	Substantial Contribution	Total ETP Funding
$508,950	$0	$508,950

In-Kind Contribution
$1,117,263

TRAINING PLAN TABLE

Job No.	Job Description	Type of Training	Average No. of Trainees	Range of Hours		Average Cost per Trainee	Post-Retention Wage
				Class / Lab	CBT		
1	Priority/Retrainee	Advanced Technology Computer Skills Continuous Improvement Manufacturing Skills	725	24-200	0	$702	$15.87
				Weighted Avg: 39			

Minimum Wage by County: $14.02 for Santa Clara and Santa Cruz counties

Health Benefits: ☒ Yes ☐ No This is employer share of cost for healthcare premiums – medical, dental, vision.

Used to meet the Post-Retention Wage?: ☐ Yes ☒ No

Health benefits are not applicable because the employer is already paying more than the ETP Minimum Wage.

Other Benefits: Life Insurance, Supplemental Life Insurance, Pension, 401k, National Holidays, Vacation, Overtime (non-exempt), Military Camp Adjustments.

Wage Range by Occupation	
Occupation Title	Wage Range
Production Staff	
Engineers	
Managers/Supervisors	

INTRODUCTION

In this proposal, Lockheed Martin Space Systems Company (Space Systems Company), a major operating unit of Lockheed Martin Corporation seeks funding for retraining as outlined below:

Lockheed Martin Corporation was formed in March 1995 with the merger of two of the technology companies, Lockheed Corporation and Martin Marietta Corporation. In 1996, Lockheed Martin completed its strategic combination with the defense electronics and systems integration businesses of Loral. Lockheed Martin traces its roots back to the early days of flight. In 1909 aviation pioneer Glenn L. Martin organized a company around an airplane construction business that merged with American-Marietta Corporation, a supplier of building and road construction materials. In 1913, the first Lockheed plane flew over San Francisco Bay. The modern Lockheed Corporation was formed in 1932.

Lockheed Martin Corporation designs and manufactures launch vehicles and systems, spacecraft for telecommunications, remote sensing and space science, as well as missile systems for defensive and strategic missions. Lockheed customers include the Department of Defense, National Aeronautical Space Administration, National Oceanic Atmospheric

Administration, the intelligence community, and other government and commercial entities in the United States and allied countries around the world.

In California, the company currently serves as the prime contractor and systems integrator on a number of critical strategic programs. These programs include the Space Based Infrared System (SBIRS), the Mobile User Objective System (MUOS), and the Advanced Extremely High Frequency (AEHF) Program. SBIRS is a next-generation missile warning system with expanded capabilities for intelligence, surveillance, and reconnaissance missions. MUOS is a narrowband tactical satellite communications system designed to replace the current Ultra High Frequency Follow-On (UFO) system. MUOS will significantly improve ground communications for U.S. forces on the move. AEHF will provide a global, highly secure, survivable communications system for Warfighters within all services of the Department of Defense.

Additional California programs include the Trident II D5 Life Extension Program geared to extend the usable life of Trident II ballistic missiles used in *Ohio* class Navy submarines. SPACE SYSTEMS COMPANY is also working on the Mission Operations System for the Transformational Satellite Communications System (TSAT). When complete, this satellite system will serve as a secure, high-capacity global communications network for the Department of Defense, NASA, and the US Intelligence Community.

Company representatives state that nanotechnology is used in several of their manufacturing processes.

This is the fourth Agreement between Lockheed Martin Corporation and the Employment Training Panel. This is the second project with Space Systems Company (Santa Clara County) – the first project was completed in 2002 (more than five years). The previous Agreement for Lockheed Aeronautics in Los Angeles County was also completed over five years ago. No substantial contribution is applied because the previous projects ended more than five years ago and the current project is at a different facility.

Space Systems Company has a diverse array of active satellite and missile programs and is requesting ETP funding to provide training to 725 employees in new technologies, new equipment, and modified production and engineering processes. The training will ensure that the company responds to current customers in an efficient and cost effective manner, and is prepared for upcoming projects. This project will train employees in Santa Clara and Santa Cruz counties.

The International Association of Machinists and Aerospace Workers, District Lodge 725 represents the production staff and submitted a letter of support for this training project.

PROJECT DETAILS

Space Systems Company is a project-based business contracted by government and commercial entities to engineer, manufacture, and refine sophisticated missile and space-based systems. To meet current contract requirements, Space Systems Company employees must be trained to effectively utilize advanced technologies and materials, operate and configure new equipment, and implement requisite changes to engineering and production procedures and processes.

Space Systems Company will provide the following types of training:

Advanced Technology To meet new project and contract requirements, engineers require training on a multitude of software packages for design, simulation, testing, and systems development applications. A variety of software tools are required to satisfy these needs including I-DEAS (design), FLUENT (simulation), T-VEC (testing), and WindRiver (embedded systems development). Additional coursework is required in various programming languages such as C++ and VHDL (Very-High-Speed Integrated Circuit (VHSIC) Hardware Description Language). Further training will be provided in specialized engineering tools and related development methodologies which will include interferometers, LADAR (Laser Detection and Ranging) equipment, and adaptive optics.

Continuous Improvement Given the complexity of the company's contracted programs, rigorous quality and organizational methods must be implemented. Satellite and missile system programs require extensive collaboration to manage changing requirements, control testing procedures, and to account for unforeseen development and production problems. The proposed curriculum of courses will teach employees to strategically reorganize tasks, identify and manage risks, improve program efficiency, and plan for future challenges.

Manufacturing Skills In order to manufacture next generation satellite and missile system technology, production personnel must adapt to changing skills requirements driven by contracted project needs. Training will address specialized equipment and tooling needs, refine quality inspection techniques, and update manufacturing procedures.

Computer Skills To assist with engineering design and development initiatives, employees require training in supportive organizational engineering software packages. These tools will provide a unified interface to manage changing product requirements and control the implementation of internal software and hardware development efforts. Training will be delivered in subjects such as DOORS (Dynamic Object-Oriented Requirements System) for requirements management, IBM Clearcase for software configuration management, and DocExpress which assists with generating reports and documentation for complex technical data.

Advanced Technology

Space Systems Company plans to implement a number of upgrades to engineering software packages and hardware tools such as Pro/ENGINEER Wildfire CAD software, MATLAB dynamic system modeling software, and instruction on interferometers which are used in space-based applications to measure the position of stars. These subjects require complex, in-depth coursework and in many cases, costly instruction from external vendors who charge up to $20,000 per session. The company is, therefore, requesting the higher rate of $26 per hour for these courses, given the specialized nature of the training and significant cost associated with delivering this complex subject matter.

Class size will be capped at 10 trainees to allow in-depth coverage and personal attention from the instructor.

Commitment to Training

Lockheed Martin's annual training budget for all company locations is $27.5 million. Space Systems Company does not have a training budget that is specific to California. However, California locations comprise approximately 40% of the overall company headcount.

Space Systems Company provides a wide variety of basic curriculum in quality, diversity, sexual harassment prevention, leadership, compliance, and orientation topics to all employees on an

annual basis. Engineers receive an assortment of software and continuous improvement courses to the extent possible with existing budget dollars. Production personnel, similarly receive a variety of manufacturing skill topics within the company's limited budgetary constraints.

After the project has concluded, Space Systems Company will continue to deliver training to keep pace with technology upgrades, changing manufacturing procedures, and continuous improvement efforts to the extent possible through future budgetary limitations.

Space Systems Company represents that ETP funds will not displace the existing financial commitment to training. Indeed, Space Systems Company anticipates that the opportunity for enhanced training made possible by ETP funds will encourage an ongoing financial commitment in this area.

Space Systems Company represents that safety training is, and will continue to be, provided in accordance with all pertinent requirements under state and federal law.

RECOMMENDATION

For the reasons set forth above, staff recommends approval of this proposal.

ACTIVE PROJECTS

The following table summarizes performance by the company under an active ETP Agreement:

Agreement No.	Approved Amount	Term	No. Trainees (Average)	No. Completed Training	No. Retained
ET07-0386	$1,261,008	6/5/07 – 6/4/09	1,251	0	0

This training is for the facility in Los Angeles County. To date, this project provided 23,556.7 hours of training and 21,252.4 of those hours are for trainees that have at least 24 hours of training for estimated earnings of $382,536.

DEVELOPMENT SERVICES

The company retained The Marquis Group in Volente, Texas to assist with development of this proposal for a flat fee of $35,179.

ADMINISTRATIVE SERVICES

The company retained The Marquis Group in San Diego to perform administrative services in connection with this proposal for a fee of $65,332, but not to exceed 13% of payment earned.

TRAINING VENDORS

Trainers will be identified for ETP record-keeping purposes, as they are retained by Space Systems Company.

Exhibit B: Menu Curriculum

Class Lab Hours
(24-200)

Trainees will receive any of the following:

ADVANCED TECHNOLOGY

- Embedded Systems Development Software
  - MATLAB/Simulink
  - Telelogic Rhapsody
  - WindRiver
- Engineering Design Software
  - I-DEAS (Integrated Design and Engineering Analysis Software)
  - Pro/ENGINEER (including Wildfire)
- Hardware Engineering Tools and Methodologies
  - Analog and Digital RF/Antenna Design
  - Optics and Metrology Equipment
- Modeling, Simulation, and Analysis Software
  - FLUENT (Computational Fluid Dynamics)
  - NASTRAN (Finite Element Analysis)
- Software Programming Languages
  - C++
  - Java
  - VHDL (Very-High-Speed Integrated Circuit (VHSIC) Hardware Description Language)
  - UML (Unified Modeling Language)
  - Advanced HTML
  - Oracle/SQL Programming
- Testing and Validation Software
  - NASGRO (Fatigue Crack Growth Analysis)
  - T-VEC Test Tool

CONTINUOUS IMPROVEMENT

- CMMI (Capability Maturity Model Integration)
- Full Spectrum Leadership
- Program Management
- Project Management
- Problem Solving
- Requirements Management Concepts
- Risk Management
- Software Planning
- Systems Engineering Tools and Methodologies

COMPUTER SKILLS

- Requirements Management Software
  - DocExpress
  - DOORS (Dynamic Object Oriented Requirements System)
- Software Configuration Management
  - IBM Rational ClearCase
  - IBM Rational Clearquest

MANUFACTURING SKILLS

- Adhesive Bonding/Composites
- Cleanroom Activities
- Crimp Terminations
- NASA Interconnecting Cables, Harnesses and Wires
- NASA Limited Soldering
- Operator/Verification Hardware Torque
- Polymerics
- Geometric Dimensioning and Tolerancing (GD and T)

DISTRICT LODGE 725

International Association of Machinists and Aerospace Workers

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August 13, 2008

Ms. Theresa Teles
Analyst
California Employment Training Panel
1065 East Hillsdale Blvd, Ste. 415
Foster City, CA 94404

Dear Ms. Teles:

I am writing on behalf of the International Association of Machinists and Aerospace Workers to state our support for the training program identified in Lockheed Martin Space Systems Company's proposed Employment Training Panel (ETP) application.

The aerospace industry is rapidly evolving, and our workers must keep pace with changing technologies and equipment upgrades. Encouraging employee retraining to meet these challenges is one of the primary goals of our union. The training outlined in this program application will provide our members with valuable new skills and development opportunities.

We strongly support the proposed ETP training project to enhance the skills of our members at Lockheed Martin's Sunnyvale site.

Sincerely,

John Fox
Area Director